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MECHANICS.

103. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy, Irving College, Mechanicsburg, Pa.

If the sun were moved into the center of the earth's orbit, how much would the present length of the year be changed ?

104. Proposed by W. H. DRANE, Graduate Student, Harvard University, Cambridge, Mass.

A tight roll of very thin and perfectly flexible oilcloth is placed upon a rough inclined plane, a portion of the cloth being unrolled and, extending from underneath the roll, is spread out smoothly upon the inclined plane below. The roll is then allowed to descend under the action of gravity, picking up the cloth as it goes. Determine the motion as far as possible.

*** Solutions of these problems should be sent to B. F. Finkel not later than Dec. 10.

DIOPHANTINE ANALYSIS.

85. Proposed by A. H. BELL, Hillsboro, Ill.

Given $x^2 - 85\frac{1}{2}y^2 = 5$. What is the value of x and y in whole numbers ?

86. Proposed by B. F. FINKEL, A. M., M.Sc., Professor of Mathematics and Physics, Drury College, Springfield, Mo.

Prove that $x^2 + 1457 \equiv 0 \pmod{2389}$ is insoluble.

*** Solutions of these problems should be sent to J. M. Colaw not later than Dec. 10.

MISCELLANEOUS.

96. Proposed by H. M. CASH, Love City, Guernsey County, Ohio.

A stick of timber is 12 feet long, 8 inches deep, and 3 inches wide at one end ; and 5 inches deep, and 12 inches wide at the other end. At what distance from either end should it be cut to divide it into two equal parts.

97. Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Chemistry and Physics, The Temple College, Philadelphia, Pa.

A spherical soap-bubble is electrified in such a way that the excess of the internal over the external air pressure is 2π when the bubble is in equilibrium. How does the tension of the film vary with the electric density ?

*** Solutions of these problems should be sent to J. M. Colaw not later than Dec. 10.

EDITORIALS.

Prof. John B. Faught, Instructor in Mathematics in the Indiana University, has been elected Professor of Mathematics in the Northern State Normal School. Marquette, Michigan.

Prof. W. H. Carter, formerly Professor of Mathematics in Centenary College, Jackson, Louisiana, has been elected Professor of Mathematics in the University School for Boys, Stone Mountain, Georgia.

We are grieved to announce the death of H. T. J. Ludwig, Professor of Mathematics in the North Carolina College, Mt. Pleasant, North Carolina, which occurred July 28th. Professor Ludwig was a regular contributor to the *Mathematical Visitor*, edited and published by Dr. Artemas Martin, to which he contributed some excellent solutions, and has been a subscriber to the MONTHLY from the beginning.

BOOKS AND PERIODICALS.

School Arithmetic.—Advanced Book. By John M. Colaw, A. M., Associate Editor of THE AMERICAN MATHEMATICAL MONTHLY, Monterey, Virginia, and J. K. Ellwood, A. M., Principal of the Colfax School, Pittsburg, Pennsylvania, author of Table Book and Test Problems in Elementary Mathematics. 8vo. Cloth and Leather Back, 442 pages. Price, 60 cents. Richmond, Va.: B. F. Johnson Publishing Co.

This book, we are told in the preface, was prepared with a view to meet the needs of progressive teachers in the best public schools. The work is modern yet conservative. The Inductive Method is applied in great measure throughout the book; new topics are introduced by carefully prepared questions and suggestions; Oral and Written Work are given with every appropriate subject; few rules are given and these are usually in the form of definitions; and Bank Practice is treated from the stand-point of modern banking principles, the information on the subject having been furnished by prominent bank officials. The book is well gotten up and the authors are to be congratulated on the arrangement and plan of the work.

B. F. F.

Annals of Mathematics. Published under the auspices of Harvard University. Second Series, Vol. II, No. 1. Published Quarterly. Price, \$2.00 per year in advance.

This number contains the following articles: Wiener's Theory of Displacement, with an Application to the Proof of Four Theorems by Chasles, by Arthur Sullivan Gale; The Complex of Axes of a Central Quadratic Surface, by Edward V. Huntington; Galois' Theory of Algebraic Equations, Part II, Irrational Resolvents, by James Pierpoint.

B. F. F.

Popular Astronomy. Edited by Wm. W. Payne and H. C. Wilson, Northfield, Minn. Issued Monthly. Price, \$2.50 per year in advance.

The October number contains, among other articles, an interesting paper by Wm. W. Payne, on The Planet Eros. Also Tables of Observation of Eros.

B. F. F.

The Literary Digest. A Weekly Compendium of the Contemporaneous Thought of the World. Price, \$3.00 per year in advance. Single number, 10 cents. Funk & Wagnalls Co., Publishers, 30 Lafayette Place, New York.

The issue for October 27 contains a brief resume of the principal events of the week. This magazine will keep the busy man posted on matters pertaining to Art, Science and Invention, and Religion.

B. F. F.